

What is claimed is:

1. A wireless communications system supporting a call with a mobile subscriber unit that is located within a sector of a cell of said wireless communications system, said sector containing a sub-sector, said wireless communications system containing a base station communicating with said mobile subscriber unit through a base station antenna for supporting said call, said wireless communications system comprising:

means for detecting an occurrence of a call event type associated with said call;

means, responsive to said detecting means, for determining an approximate location of said mobile subscriber unit at the occurrence of said call event type;

means, responsive to said determining means, for mapping said approximate location to said sub-sector of said sector;

means, responsive to said mapping means, for incrementing a corresponding event counter that is associated with said call event type and said sub-sector; and

means, responsive to said incrementing means, for accumulating said corresponding event counter during a study period.

2. The wireless communications system of claim 1, wherein said call is a mobile-originated call.

3. The wireless communications system of claim 1, wherein said call is a mobile-terminated call.

4. The wireless communications system of claim 1, wherein said approximate location of said mobile subscriber unit is a last known location of said mobile subscriber unit if said approximate location of said mobile subscriber unit cannot be ascertained by said determining means.

5. The wireless communications system of claim 1, wherein said call event type is selected from the group consisting of dropped call, blocked call, forward frame error rate, and reverse frame error rate.

6. The wireless communications system of claim 1, wherein a performance metric is associated with said sub-sector and further comprising:

means, in response to said accumulating means, for adjusting a radiation pattern of said base station antenna by coupling control signals to said base station antenna in order to provide an improvement of said performance metric determined by said corresponding event counter.

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7. The wireless communications system of claim 6, wherein a second performance metric is associated with a second sub-sector and wherein said adjusting means comprises:

means for calculating updated values of said control signals to provide said improvement of said performance metric;

10 means, responsive to said calculating means, for modifying said updated values in order to limit a degradation of said second performance metric; and

means, responsive to said modifying means, for adjusting said radiation pattern of said base station antenna with said updated values.

15 8. The wireless communications system of claim 7, wherein said second sub-sector is located within the cell served by said base station.

9. The wireless communications system of claim 7, wherein said second sub-sector is located within a second cell served by a second base station.

20 10. The wireless communications system of claim 6, wherein a second performance metric is associated with a second sub-sector and wherein said adjusting means comprises:

means for assessing whether said second performance metric is degraded more than a predetermined limit;

means, responsive to said assessing means, for calculating incremental values of said control signals to provide said improvement of said performance metric; and

25 means, responsive to said calculating means, for adjusting said radiation pattern of said base station antenna with said incremental values.

30 11. The wireless communications system of claim 10, wherein said second sub-sector is located within the cell served by said base station.

12. The wireless communications system of claim 10, wherein said second sub-sector is located within a second cell served by a second base station.

13. The wireless communications system of claim 6, wherein said base station antenna is a linear array antenna.

14. The wireless communications system of claim 6, wherein said base station antenna comprises a plurality of sub-sectors, each sub-sector associated with a narrow beam radiation pattern.

15. A method for supporting a call for a mobile subscriber unit that is located within a sector of a cell of a wireless communications system, said sector containing a sub-sector, said wireless system containing a base station communicating with said mobile subscriber unit through a base station antenna for supporting said call, said method comprising the steps of:

detecting an occurrence of a call event type associated with said call;

determining an approximate location of said mobile subscriber unit at said occurrence of said call event type, responsive to said step of detecting;

mapping said approximate location to a sub-sector, responsive to said step of determining;

incrementing a corresponding event counter that is associated with said call event type and said sub-sector responsive to said step of mapping; and

accumulating said corresponding event counter during a study period responsive to said step of incrementing.

16. The method of claim 15, wherein a performance metric is associated with said sub-sector and further comprising the step of:

adjusting a radiation pattern of said base station antenna by coupling control signals to said base station antenna in order to provide an improvement of said performance metric, responsive to said step of accumulating.

17. The method of claim 16, wherein a second performance metric is associated with a second sub-sector and wherein said step of adjusting comprises:

calculating updated values of said control signals to provide said improvement of said performance metric;

modifying said updated values of said control signals in order to limit a degradation of said second performance metric, responsive to said step of calculating; and

adjusting said radiation pattern of said base station antenna with said updated values, responsive to said step of modifying.

18. The method of claim 16, wherein a second performance metric is associated with a second sub-sector and wherein said step of adjusting comprises:

5 determining whether said second performance metric is degraded more than a predetermined limit;

calculating incremental values of said control signals to provide said improvement of said performance metric, responsive to said step of determining, and

adjusting said radiation pattern of said antenna with said incremental values,
10 responsive to said step of calculating.

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